

**BEFORE THE  
PUBLIC SERVICE COMMISSION OF  
SOUTH CAROLINA**

**DOCKET NO. 2018-1-E**

In the Matter of	)	
Annual Review of Base Rates	)	<b>DIRECT TESTIMONY OF</b>
for Fuel Costs for	)	<b>ERIC GRANT FOR</b>
Duke Energy Progress, LLC	)	<b>DUKE ENERGY PROGRESS, LLC</b>

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1     **Q.     PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2     A.     My name is Eric Grant. My business address is 526 South Church Street, Charlotte,  
3             North Carolina 28202.

4     **Q.     BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5     A.     I am Vice President, Fuels & Systems Optimization for Duke Energy Corporation  
6             ("Duke Energy"). In that capacity, I lead the organization responsible for the  
7             purchase and delivery of coal, natural gas, fuel oil, reagents, and emissions to Duke  
8             Energy's regulated generation fleet, including Duke Energy Progress, LLC ("Duke  
9             Energy Progress," "DEP," or the "Company") and Duke Energy Carolinas, LLC  
10            ("DEC") (collectively, the "Companies"). In addition, I manage the fleet's power  
11            trading, system optimization, energy supply analytics, and contract admission  
12            functions.

13    **Q.     PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL AND**  
14    **PROFESSIONAL EXPERIENCE.**

15    A.     I have a Bachelor of Science degree in Electrical Engineering from North Carolina  
16             State University. I joined Progress Energy in 1990, as an engineer in the Nuclear  
17             Engineering Department. From 2000-2006, I held a variety of management  
18             positions within Progress Energy's System Planning and Operations Department,  
19             including managing system operations for what is now DEP and Duke Energy  
20             Florida, LLC ("DEF"). In 2007, I became General Manager for the DEF Combine  
21             Cycle and Combustion Turbine Generation Fleet. I joined Duke Energy in July  
22             2012 as the Managing Director of System Optimization, the position which I held  
23             until April 2017. I assumed my current position in April 2017. I am also a licensed

1 professional engineer in the state of North Carolina.

2 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
3 **PROCEEDING?**

4 A. The purpose of my testimony is to describe DEP's fossil fuel purchasing practices,  
5 provide actual fossil fuel costs for the period March 1, 2017 through February 28,  
6 2018 ("review period") versus March 1, 2016 through February 28, 2017 ("prior  
7 review period"), and describe changes forthcoming for the period July 1, 2018  
8 through June 30, 2019 ("billing period").

9 **Q. YOUR TESTIMONY INCLUDES TWO EXHIBITS. WERE THESE**  
10 **EXHIBITS PREPARED BY YOU OR AT YOUR DIRECTION AND UNDER**  
11 **YOUR SUPERVISION?**

12 A. Yes. These exhibits were prepared at my direction and under my supervision, and  
13 consist of Grant Exhibit 1, which summarizes the Company's Fossil Fuel  
14 Procurement Practices, and Grant Exhibit 2, which summarizes total monthly natural  
15 gas purchases and monthly contract and spot coal purchases during the review  
16 period and the prior review period.

17 **Q. PLEASE PROVIDE A SUMMARY OF DEP'S FOSSIL FUEL**  
18 **PROCUREMENT PRACTICES.**

19 A. A summary of the Company's fossil fuel procurement practices is set out in Grant  
20 Exhibit 1.

21

1     **Q.     HOW DOES THE COMPANY OPERATE ITS PORTFOLIO OF**  
2     **GENERATION ASSETS TO RELIABLY AND ECONOMICALLY SERVE**  
3     **ITS CUSTOMERS?**

4     **A.**     Both DEP and DEC utilize the same process to ensure that the assets of the  
5     Companies are reliably and economically available to serve their respective  
6     customers. To that end, both companies consider factors that include, but are not  
7     limited to, the latest forecasted fuel prices, transportation rates, planned maintenance  
8     and refueling outages at the generating units, generating unit performance  
9     parameters, and expected market conditions associated with power purchases and  
10    off-system sales opportunities in order to determine the most economic and reliable  
11    means of serving their customers.

12    **Q.     PLEASE DESCRIBE THE COMPANY’S DELIVERED COST OF COAL**  
13    **AND NATURAL GAS DURING THE REVIEW PERIOD.**

14    **A.**     The Company’s average delivered cost of coal per ton for the review period was  
15    \$80.89 per ton, compared to \$79.96 per ton in the prior review period, representing  
16    an increase of approximately 1%. This includes an average transportation cost of  
17    \$29.36 per ton in the review period, compared to \$27.59 per ton in the prior review  
18    period, representing an increase of approximately 6%. The Company’s average  
19    price of gas purchased for the review period was \$4.70 per Million British Thermal  
20    Units (“MBtu”), compared to \$3.91 per MBtu in the prior review period,  
21    representing an increase of 20%. The cost of gas is inclusive of gas supply,  
22    transportation, storage and financial hedging.

23               DEP’s coal burn for the review period was 4.0 million tons, compared to a

1 coal burn of 4.5 million tons in the prior review period, representing a decline of  
2 11%. The Company's natural gas burn for the review period was 168.3 million  
3 MBtu compared to a gas burn of 172.6 million MBtu in the prior review period,  
4 representing a decrease of 2.5%. The primary contributing factors were changes in  
5 (1) weather driven demand, and (2) commodity prices.

6 **Q. PLEASE DESCRIBE THE LATEST TRENDS IN COAL AND NATURAL**  
7 **GAS MARKET CONDITIONS.**

8 A. Coal markets continue to be in a state of flux due to a number of factors, including:  
9 (1) uncertainty around proposed, imposed, and stayed U.S. Environmental  
10 Protection Agency ("EPA") regulations for power plants; (2) continued abundant  
11 natural gas supply and storage resulting in lower natural gas prices, which has also  
12 lowered overall coal demand; (3) continued changes in global market demand for  
13 both steam and metallurgical coal; (4) uncertainty surrounding regulations for  
14 mining operations; and (5) tightening supply as bankruptcies, consolidations and  
15 company reorganizations have allowed coal suppliers to restructure and settle into  
16 new, lower on-going production levels.

17 With respect to natural gas, the nation's natural gas supply has grown  
18 significantly over the last several years and producers continue to enhance  
19 production techniques, increase efficiencies, and lower production costs. Natural  
20 gas prices are reflective of the dynamics between supply and demand factors, and in  
21 the short term, such dynamics are influenced primarily by seasonal weather demand  
22 and overall storage inventory balances. In addition, there continues to be growth in  
23 the natural gas pipeline infrastructure needed to serve increased market demand.

1 However, pipeline infrastructure permitting and regulatory process approval efforts  
2 are taking longer due to increased reviews and interventions, which can delay and  
3 change planned pipeline construction and commissioning timing.

4 Over the longer term planning horizon, natural gas supply is projected to  
5 continue to increase along with the needed pipeline infrastructure to move the  
6 growing supply to meet demand related to power generation, liquefied natural gas  
7 exports and pipeline exports to Mexico.

8 **Q. WHAT ARE THE PROJECTED COAL AND NATURAL GAS**  
9 **CONSUMPTIONS AND COSTS FOR THE BILLING PERIOD?**

10 A. DEP's current coal burn projection for the billing period is 2.7 million tons  
11 compared to 4.0 million tons consumed during the review period. DEP's billing  
12 period projections for coal generation may be impacted due to changes from, but not  
13 limited to, the following factors: (1) delivered natural gas prices versus the average  
14 delivered cost of coal; (2) volatile power prices; and (3) electric demand. Combining  
15 coal and transportation costs, DEP projects average delivered coal costs of  
16 approximately \$81.15 per ton for the billing period compared to \$80.89 per ton in  
17 the review period. This cost, however, is subject to change based on, but not limited  
18 to, the following factors: (1) exposure to market prices and their impact on open coal  
19 positions; (2) the amount of non-Central Appalachian coal DEP is able to consume;  
20 (3) performance of contract deliveries by suppliers and railroads which may not  
21 occur despite DEP's strong contract compliance monitoring process; (4) changes in  
22 transportation rates; and (5) potential additional costs associated with suppliers'

1 compliance with legal and statutory changes, the effects of which can be passed on  
2 through coal contracts.

3 DEP's current natural gas burn projection for the billing period is  
4 approximately 161.1 million MBtu, which is a decrease from the 168.3 million  
5 MBtu consumed during the review period. The current average forward Henry Hub  
6 price for the billing period is \$2.89 per million MBtu compared to \$3.03 per million  
7 MBtu in the review period. Projected natural gas burn volumes will vary based on  
8 factors such as, but not limited to, changes in actual delivered fuel costs and weather  
9 driven demand.

10 **Q. WHAT STEPS IS DEP TAKING TO MANAGE PORTFOLIO FUEL**  
11 **COSTS?**

12 A. The Company continues to maintain a comprehensive coal and natural gas  
13 procurement strategy that has proven successful over the years in limiting average  
14 annual fuel price changes while actively managing the dynamic demands of its fossil  
15 fuel generation fleet in a reliable and cost effective manner. With respect to coal  
16 procurement, the Company's procurement strategy includes (1) having an  
17 appropriate mix of contract and spot purchases for coal; (2) staggering coal contract  
18 expirations in order to limit exposure to market price changes; and (3) diversifying  
19 coal sourcing as economics warrant, as well as working with coal suppliers to  
20 incorporate additional flexibility into their supply contracts. The Company conducts  
21 spot market solicitations throughout the year to supplement term contract purchases,  
22 taking into account changes in projected coal burns and existing coal inventory  
23 levels.

1           The Company has implemented natural gas procurement practices that  
2           include periodic Request for Proposals and shorter-term market engagement  
3           activities to procure and actively manage a reliable, flexible, diverse, and  
4           competitively priced natural gas supply. These procurement practices include  
5           contracting for volumetric optionality in order to provide flexibility in responding to  
6           changes in forecasted fuel consumption. Lastly, DEP continues to maintain a short-  
7           term natural gas hedging plan to manage fuel cost risk for customers via a  
8           disciplined, structured execution approach. DEP continues to monitor and make  
9           adjustments as necessary to its natural gas hedging program.

10   **Q.    DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

11   **A.    Yes, it does.**



## **Duke Energy Progress, LLC Fossil Fuel Procurement Practices**

### **Coal**

- Near and long-term coal consumption is forecasted based on inputs such as load projections, fleet maintenance and availability schedules, coal quality and cost, environmental permit and emissions considerations, projected renewable capacity, and wholesale energy imports and exports.
- Station and system inventory targets are developed to provide reliability, insulation from short-term market volatility, and sensitivity to evolving coal production and transportation conditions. Inventories are monitored continuously.
- On a continuous basis, existing purchase commitments are compared with consumption and inventory requirements to determine additional needs.
- All qualified suppliers are invited to participate in proposals to satisfy additional or contract needs.
- Spot market solicitations are conducted on an on-going basis to supplement contract purchases.
- Contracts are awarded based on the lowest evaluated offer, considering factors such as price, quality, transportation, reliability and flexibility.
- Delivered coal volume and quality are monitored against contract commitments. Coal and freight payments are calculated based on certified scale weights and coal quality analysis meeting ASTM standards as established by ASTM International.

### **Gas**

- Near and long-term natural gas consumption is forecasted based on inputs such as load projections, commodity and emission prices, projected renewable capacity, and fleet maintenance and availability schedules.
- Physical procurement targets are developed to procure a cost effective and reliable natural gas supply.
- Over time, short-term and long-term Requests for Proposals and market solicitations are conducted with potential suppliers to procure the cost competitive, secure, and reliable natural gas supply, firm transportation, and storage capacity needed to meet forecasted gas usage.
- Short-term and spot purchases are conducted on an on-going basis to supplement term natural gas supply.
- On a continuous basis, existing purchases are compared against forecasted gas usage to ascertain additional needs.
- Natural gas transportation for the generation fleet is obtained through a mix of long term firm transportation agreements, and shorter term pipeline capacity purchases.
- A targeted percentage of the natural gas fuel price exposure is managed via a rolling 36-month structured financial natural gas hedging program.
- Through the Asset Management and Delivered Supply Agreement between Duke Energy Carolinas, LLC (“DEC”) and Duke Energy Progress, LLC implemented on January 1, 2103, DEC serves as the designated Asset Manager that procures and manages the combined gas supply needs for the combined Carolinas gas fleet.

**Fuel Oil**

- No. 2 fuel oil is burned primarily for initiation of coal combustion (light-off at steam plants) and in combustion turbines (peaking assets).
- All No. 2 fuel oil is moved via pipeline to applicable terminals where it is then loaded on trucks for delivery into the Company's storage tanks. Because oil usage is highly variable, the Company relies on a combination of inventory, responsive suppliers with access to multiple terminals, and trucking agreements to manage its needs. Replenishment of No. 2 fuel oil inventories at the applicable plant facilities is done on an "as needed basis" and coordinated between fuel procurement and station personnel.
- Formal solicitations for supply may be conducted as needed with an emphasis on maintaining a network of reliable suppliers at a competitive market price in the region of our generating assets.

DUKE ENERGY PROGRESS  
Summary of Coal Purchases  
Twelve Months Ended February 2018 & 2017  
Tons

<u>Line No.</u>	<u>Month</u>	<u>Contract (Tons)</u>	<u>Net Spot Purchase and Sales (Tons)</u>	<u>Total (Tons)</u>
1	March 2017	191,908	13,396	205,304
2	April	223,875	0	223,875
3	May	224,952	0	224,952
4	June	238,854	12,264	251,118
5	July	320,213	0	320,213
6	August	430,436	0	430,436
7	September	346,651	0	346,651
8	October	325,000	0	325,000
9	November	324,889	0	324,889
10	December	229,150	0	229,150
11	January 2018	212,233	0	212,233
12	February	235,368	0	235,368
<b>13</b>	<b>Total (Sum L1:L12)</b>	<b>3,303,530</b>	<b>25,660</b>	<b>3,329,190</b>

<u>Line No.</u>	<u>Month</u>	<u>Contract (Tons)</u>	<u>Net Spot Purchase and Sales (Tons)</u>	<u>Total (Tons)</u>
14	March 2016	459,644	0	459,644
15	April	243,140	0	243,140
16	May	240,749	0	240,749
17	June	251,139	0	251,139
18	July	367,433	0	367,433
19	August	496,536	0	496,536
20	September	505,889	0	505,889
21	October	392,494	41	392,535
22	November	525,819	0	525,819
23	December	494,298	12,899	507,197
24	January 2017	319,044	72,713	391,757
25	February	284,208	29,067	313,275
<b>26</b>	<b>Total (Sum L14:L25)</b>	<b>4,580,393</b>	<b>114,720</b>	<b>4,695,113</b>

DUKE ENERGY PROGRESS  
Summary of Gas Purchases  
Twelve Months Ended February 2018 & 2017  
MBTUs

<u>Line</u> <u>No.</u>	<u>Month</u>	<u>MBTUs</u>
1	March 2017	14,884,889
2	April	11,260,572
3	May	11,466,510
4	June	13,517,327
5	July	15,763,956
6	August	15,138,794
7	September	13,928,655
8	October	12,729,705
9	November	14,540,861
10	December	16,817,106
11	January 2018	14,446,004
12	February	13,775,980
<b>13</b>	<b>Total (Sum L1:L12)</b>	<b>168,270,359</b>

<u>Line</u> <u>No.</u>	<u>Month</u>	<u>MBTUs</u>
14	March 2016	17,697,705
15	April	14,115,727
16	May	14,616,922
17	June	14,111,918
18	July	16,564,902
19	August	17,177,486
20	September	12,559,298
21	October	9,919,151
22	November	14,384,387
23	December	13,607,974
24	January 2017	13,786,819
25	February	14,028,144
<b>26</b>	<b>Total (Sum L14:L25)</b>	<b>172,570,433</b>